

FURTHER STUDY ON AUSTRALIAN HETEROMYSIDS (CRUSTACEA: MYSIDACEA)

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ABSTRACT

Three new species of heteromysids are described. A new species, *Heteromysis (Olivaemysis) maxima*, collected from South Australia, is distinguished from allied species by a combination of characters in the shape of the rostrum, the spination on the carpopropodus of the thoracic endopod 3, and the numbers of spines on the uropodal endopod and the telson. The second species, *Heteromysoides nana* sp. nov., from the Northern Territory, is identified by the telson without apical cleft, the uropodal endopod without spines on the inner margin and the eyestalk with rounded anteromedial corner. The last species, *Heteromysoides sahulensis* sp. nov., captured from the Sahul Shelf, is different from other species of the genus in the shapes and armatures of the uropod and the telson.

KEYWORDS: Crustacea, Mysidacea, *Heteromysis*, *Heteromysoides*, new species, Australia

INTRODUCTION

Heteromysids stored in the Northern Territory Museum, Darwin, were previously reported by the present author (Murano 1988). A further two new species were found among the mysid specimens which were again sent me for identification from the Northern Territory Museum. A third new species also described here was found among mysid material collected from the Sahul Shelf during a cruise of RV *Hakuho Maru* of the University of Tokyo. In this paper descriptions of the three new species are given. The type specimens are stored in the Museum and Art Gallery of the Northern Territory (NTM), Darwin, Australia.

SYSTEMATICS

Heteromysis (Olivaemysis) maxima sp. nov. (Figs 1-3)

Type material. HOLOTYPE – adult male, NTM Cr. 006872, 8.6 mm, Edithburgh Jetty, South Australia, 34°55'S, 137°45'E, 8 m, inside sponge on jetty pylon, 29 December 1989.

Description. Carapace produced anteriorly into triangular rostrum with

broadly rounded apex extending beyond basal margin of antennular peduncle, lateral margins of rostrum nearly straight (Fig. 1A); anterolateral corners of carapace rounded; posterior margin emarginate, leaving last thoracic somite exposed dorsally.

Eye extending slightly beyond distal end of antennular peduncle segment 1, longer than wide, with hemispherical cornea narrower than stalk and occupying less than half of whole organ; eyestalk with small but prominent triangular denticle at distal end of medial margin (Fig. 1A).

Antennular peduncle robust, segment 1 with prolonged distolateral angle tipped with several setae; segment 2 with long medial margin and very short outer margin for oblique connection with segment 3, armed on medial margin with one flagellate, flattened spine and one ordinary seta; segment 3 armed on middle of medial margin with one seta and at distomedial corner with one flagellate spine and three setae, one of which is stout and directed outwardly (Fig. 1A).

Antennal scale shorter than antennular peduncle, elongated elliptical, 2.5 times longer than broad, setose all round, inner margin more convex than outer, distal suture invisible (Fig. 1B). Antennal peduncle

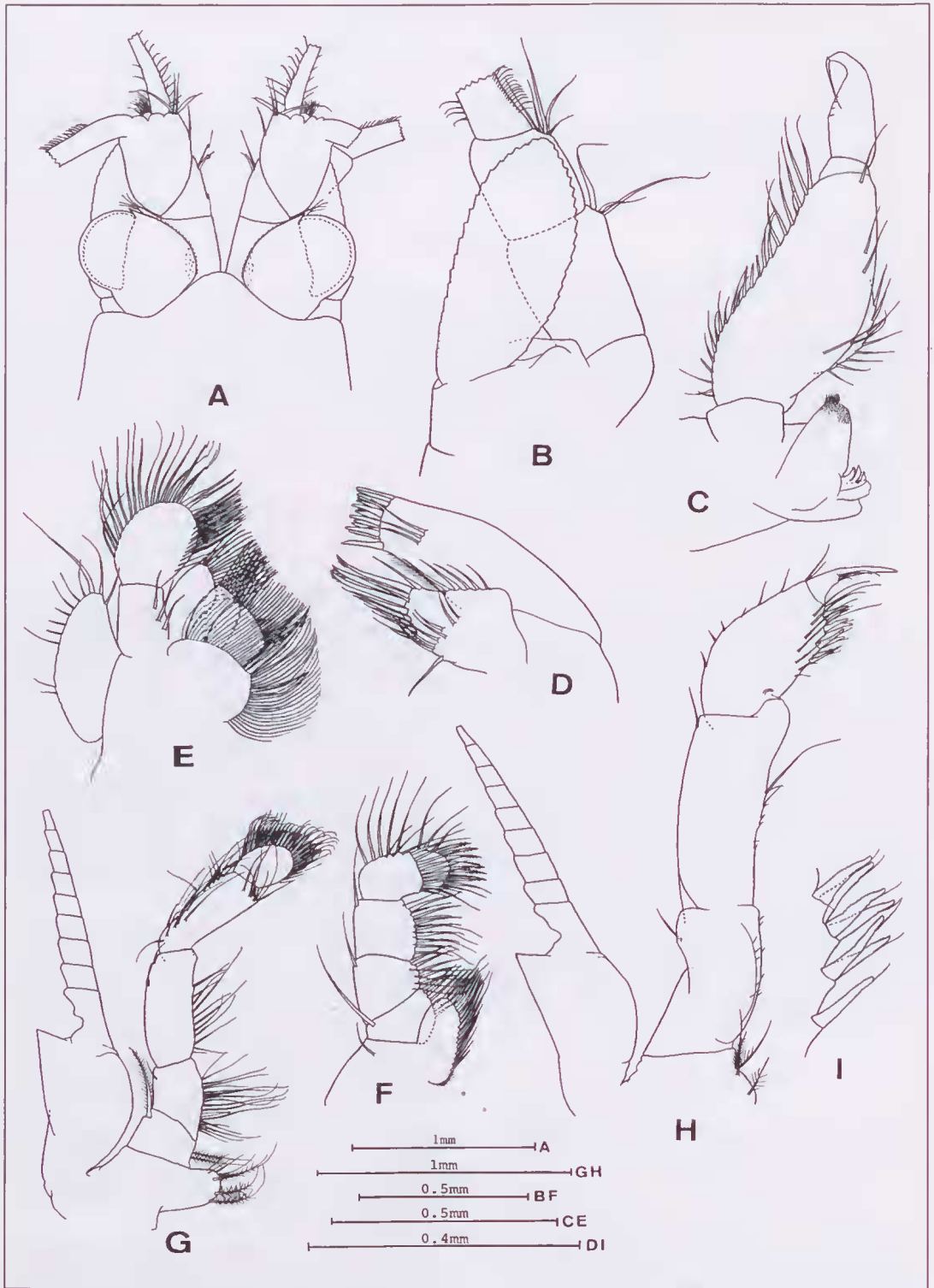


Fig. 1. *Heteromysis (Olivaemysis) maxima* sp. nov., holotype. A, anterior end of body; B, antenna; C, mandible; D, maxillule; E, maxilla; F, endopod of first thoracic limb; G, second thoracic limb; H, third thoracic limb; I, spination on inner margin of carpopropodus of third thoracic endopod.

extending slightly beyond antennal scale, segment 2 longest (Fig. 1B).

Mouth parts and thoracic endopods 1 and 2 as shown in Fig. 1C–G.

Thoracic endopod 3 robust, merus 2.5 times longer than broad, with one long seta and about eight short setae at middle of inner margin and one seta near distal end of outer margin; carpopropodus less than twice as long as broad, becoming narrower distally, with one single and three paired spines (seven spines in total) on distal half of inner margin, these spines armed with a single subterminal seta; terminal claw very stout (Fig. 1H–I). Carpopropodus of thoracic endopods 4, 5 and 7 divided into four, nine and three subsegments, respectively; dactylus small, terminating in slender claw (Fig. 2A–C). Condition in endopods 6 and 8 unknown due to loss. Thoracic exopods distal to basal plate 9-segmented, basal plate with pointed distolateral corner (Fig. 1G–H; Fig. 2A–B). Penis cylindrical, slightly curved anteriorly, with bilobed apex, outer margin with short seta at proximal third (Fig. 2D–F).

Abdominal somites 1–5 subequal, somite 6 slightly longer than others. Pleopods uniramous, unsegmented, increasing in length from first to fifth pair; pleopods 3 and 4 modified, armed on inner margin of distal ramus with eight spines tipped with short seta; pleopod 5 with one long and three short setae on apex, latter three setae directed distally, inwardly and outwardly, respectively (Fig. 3A–E).

Uropod with both rami broad, setose all round; endopod reaching tip of longer apical spine on telson, with four to five spines in statocyst region on inner margin; exopod overreaching endopod for 1/7 of its length (Fig. 3F–G).

Telson longer than abdominal somite 6, triangular with apical sinus, 1.3 times as long as maximum breadth at base; lateral margin slightly concave in proximal half and slightly convex in distal half, furnished throughout entire length with 24–25 spines, posterior spines becoming progressively longer and more sparse distally; each apex of lobes with two spines, inner spine shorter than distalmost spine on lateral margin, outer

spine more than twice as long as inner, longest among marginal spines of telson; apical sinus diverging, about 1/4 of telson length, with about 35 spinules along entire length of margin.

Remarks. The genus *Heteromysis* comprises as many as 51 species (Müller 1993). Among them, this new species resembles *H. ageles* Modlin, 1987a, *H. bredini* Brattegard, 1970, *H. (Olivaenysis) sexspinosa* Murano, 1988, and *H. tuberculospina* Modlin, 1987b, in: (1) the eye is provided with a denticle at the distomedial angle of the stalk, (2) the thoracic endopod 3 has a moderately developed carpopropodus, (3) the male pleopods 3 and 4 become narrower distally and are armed with a row of flagellate spines on the inner margin, and (4) the telson is armed with spines throughout the margin.

Heteromysis maxima sp. nov., however, differs from the latter four species as follows: (1) the rostrum is triangular with broadly rounded apex in the new species while narrowly rounded or obtusely pointed in the latter four species, (2) the spines on the carpopropodus of the thoracic endopod 3 are present on the distal half in the new species but almost the entire length in *H. tuberculospina*, (3) the endopod of uropod is armed with four or five spines in the new species compared with two in *H. sexspinosa* and *H. ageles*, (4) the number of the lateral spines of the telson is greater in the new species than in the latter four species: 24–25 in the new species compared with 14–15 in *H. ageles*, 19–20 in *H. bredini*, 18–19 in *H. sexspinosa* and 17–18 in *H. tuberculospina*, (5) the distal sinus of the telson in the new species is fringed with more spines than in the latter four species: 35 in the new species compared with 12 in *H. ageles*, 31 in *H. bredini*, 25 in *H. sexspinosa* and 18–20 in *H. tuberculospina*, (6) the new species is considerably larger in body size than the latter four species: 8.6 mm in the new species as against 4.0–5.5 in *H. ageles*, 5.8 mm in *H. bredini*, 5.9 mm in *H. sexspinosa* and 2.7–4.8 mm in *H. tuberculospina*.

Etymology. The species name *maxima* refers to large body size.

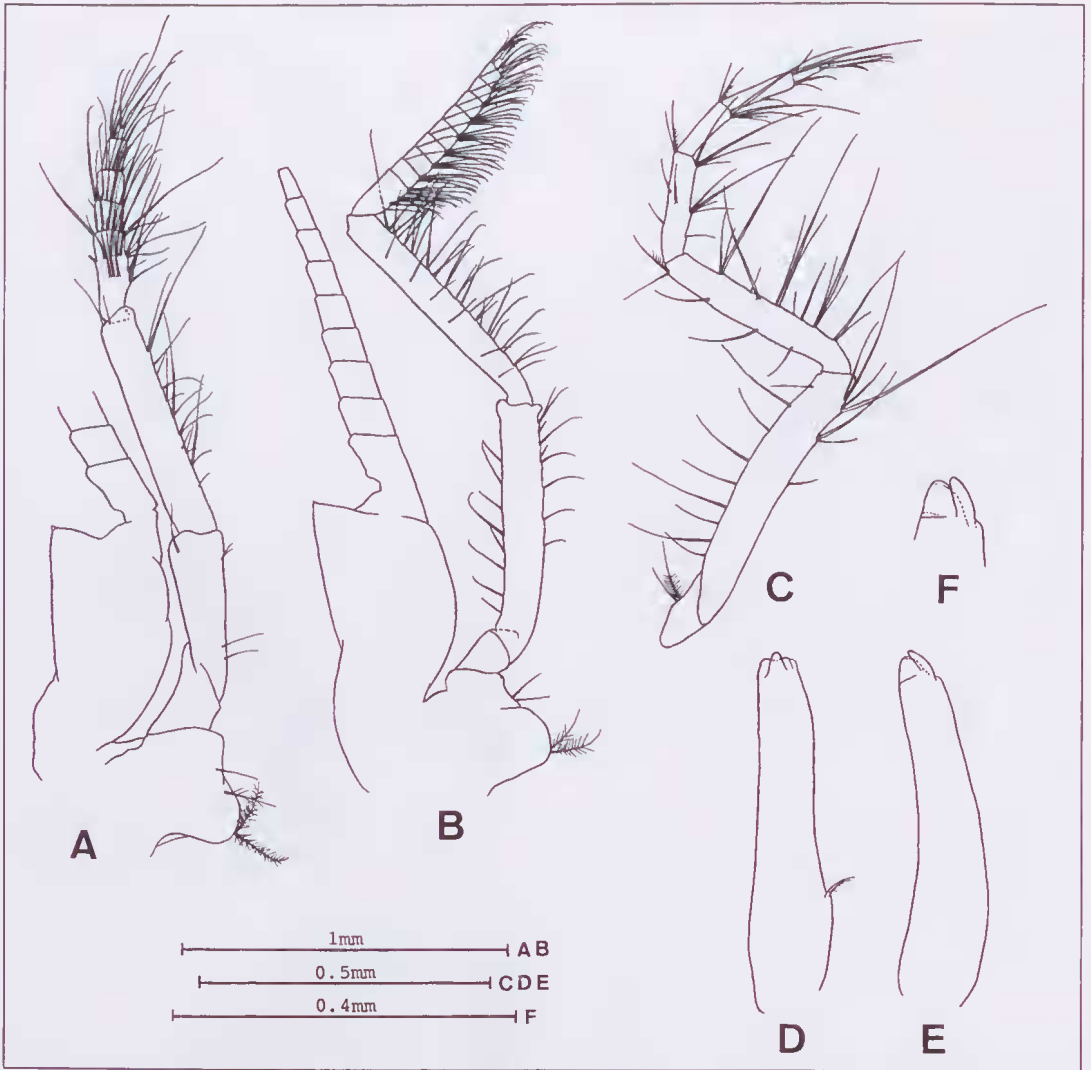


Fig. 2. *Heteromysis (Olivaemysis) maxima* sp. nov., holotype. A, endopod of fourth thoracic limb; B, fifth thoracic limb; C, endopod of seventh thoracic limb; D, penis, posterior view; E, penis, lateral view; F, extremity of penis.

***Heteromysoides nana* sp. nov.**
(Figs 4, 5)

Type specimen. HOLOTYPE – adult female with embryos, NTM Cr. 008032, 3.3 mm, Channel Island, Northern Territory, mud around mangroves, 2 July 1991, coll. K. Coombes.

Description. Body depressed dorsoventrally. Frontal margin of carapace broadly rounded, not produced anteriorly, covering basal part of eyestalks (Fig. 4A); anterolateral corner of carapace rounded; posterior margin emarginate, leaving last thoracic somite exposed dorsally.

Eye large, subquadrate, flattened, covering major part of antennular peduncle segment 1 in dorsal view; cycstalk with rounded anteromedial corner, medial margins overlapping each other; cornea occupying distolateral corner of stalk, with weakly angulate corner (Fig. 4A).

Antennular peduncle: segment 1 with prolonged distolateral corner armed with several setae; segment 2 short, triangular, with long seta on distomedial corner; segment 3 longer than segment 1, broader than segment 2, with one long seta on middle of medial margin and four setae at distomedial corner (Fig. 4A).

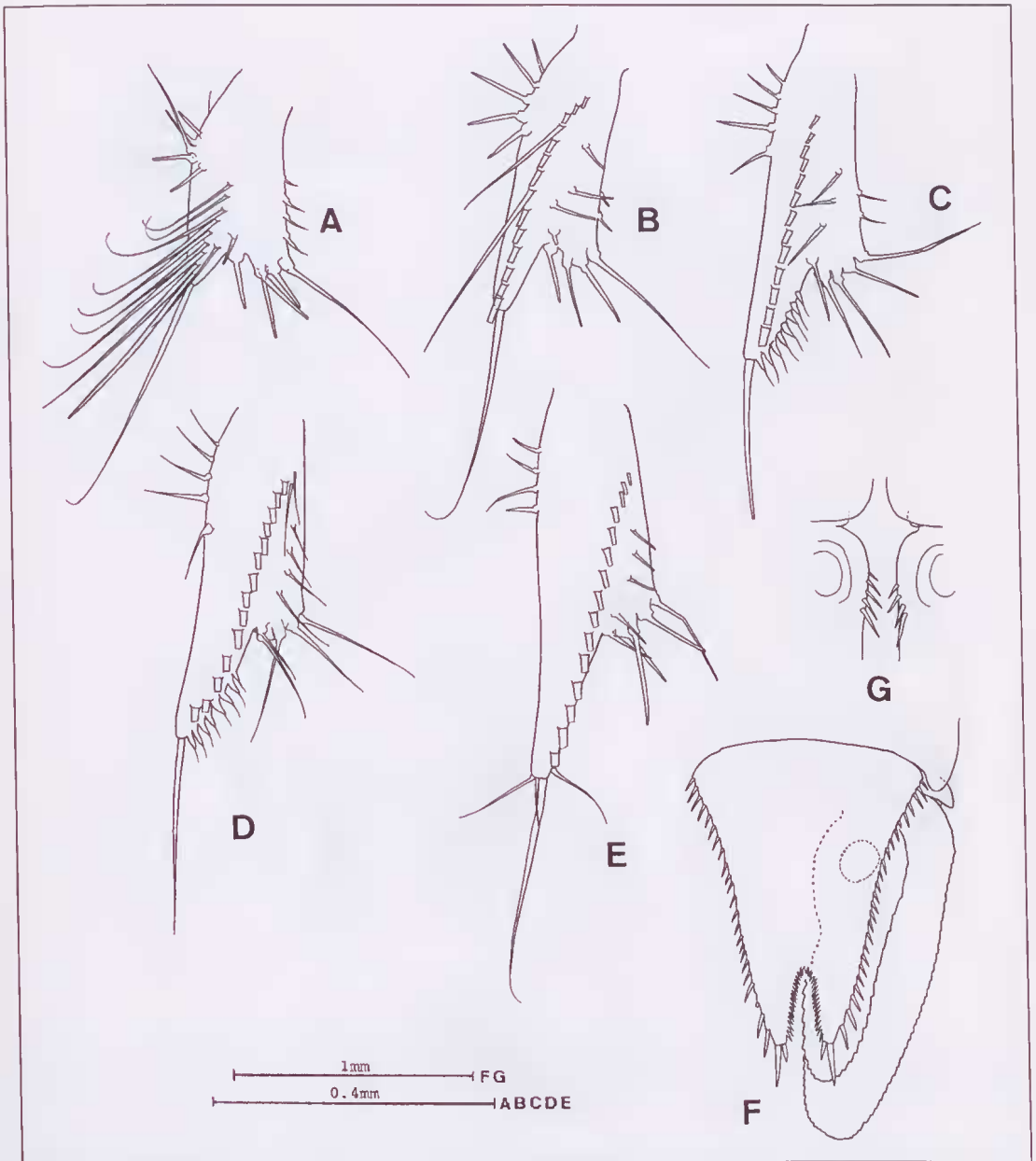


Fig. 3. *Heteromysis (Olivaemysis) maxima* sp. nov., holotype. A, first pleopod; B, second pleopod; C, third pleopod; D, fourth pleopod; E, fifth pleopod; F, uropod and telson; G, proximal part of uropod, ventral view.

Antennal peduncle as long as antennular peduncle, segment 2 twice as long as broad, longer than either of segments 1 and 3; sympod with distolateral corner produced into acute tooth (Fig. 4B). Antennal scale elongated elliptical, setose all round, nearly three times longer than maximum breadth, not extending to distal end of antennal peduncle, medial margin more convex than

lateral margin, distal suture marked off at distal 1/11 (Fig. 4B).

Labrum wider than long, with frontal margin rounded. Mandibular palp (Fig. 4C): segment 2 with three long setae on distal margin, two short setae on outer margin and 1 short seta on inner margin; segment 3 short, outer margin with row of close-set marginal setae, medial margin rounded.

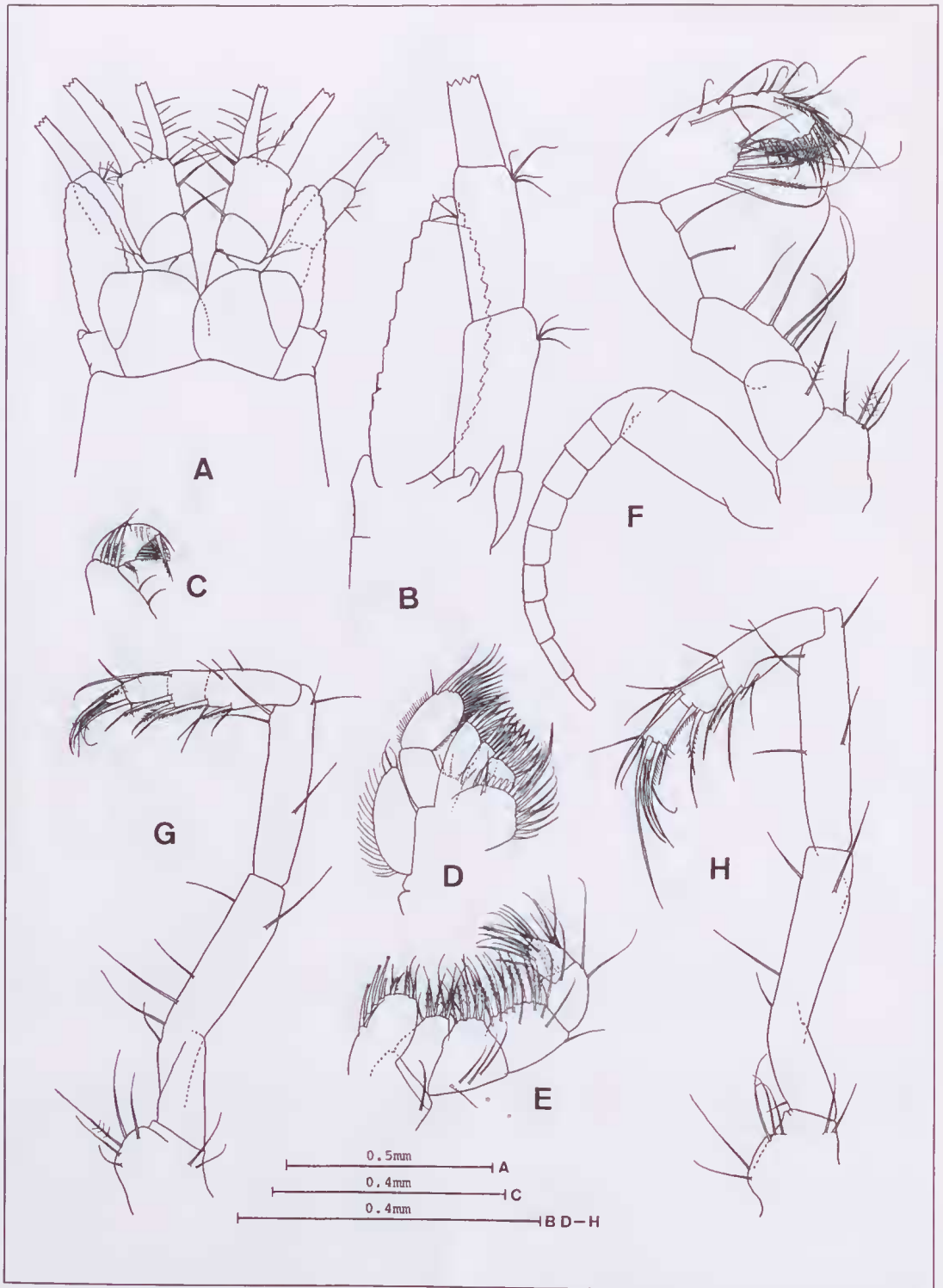


Fig. 4. *Heteromysoides nana* sp. nov., holotype. A, anterior end of body; B, antenna; C, distal part of mandibular palp; D, maxilla; E, endopod of first thoracic limb; F, second thoracic limb; G, endopod of third thoracic limb; H, endopod of fourth thoracic limb.

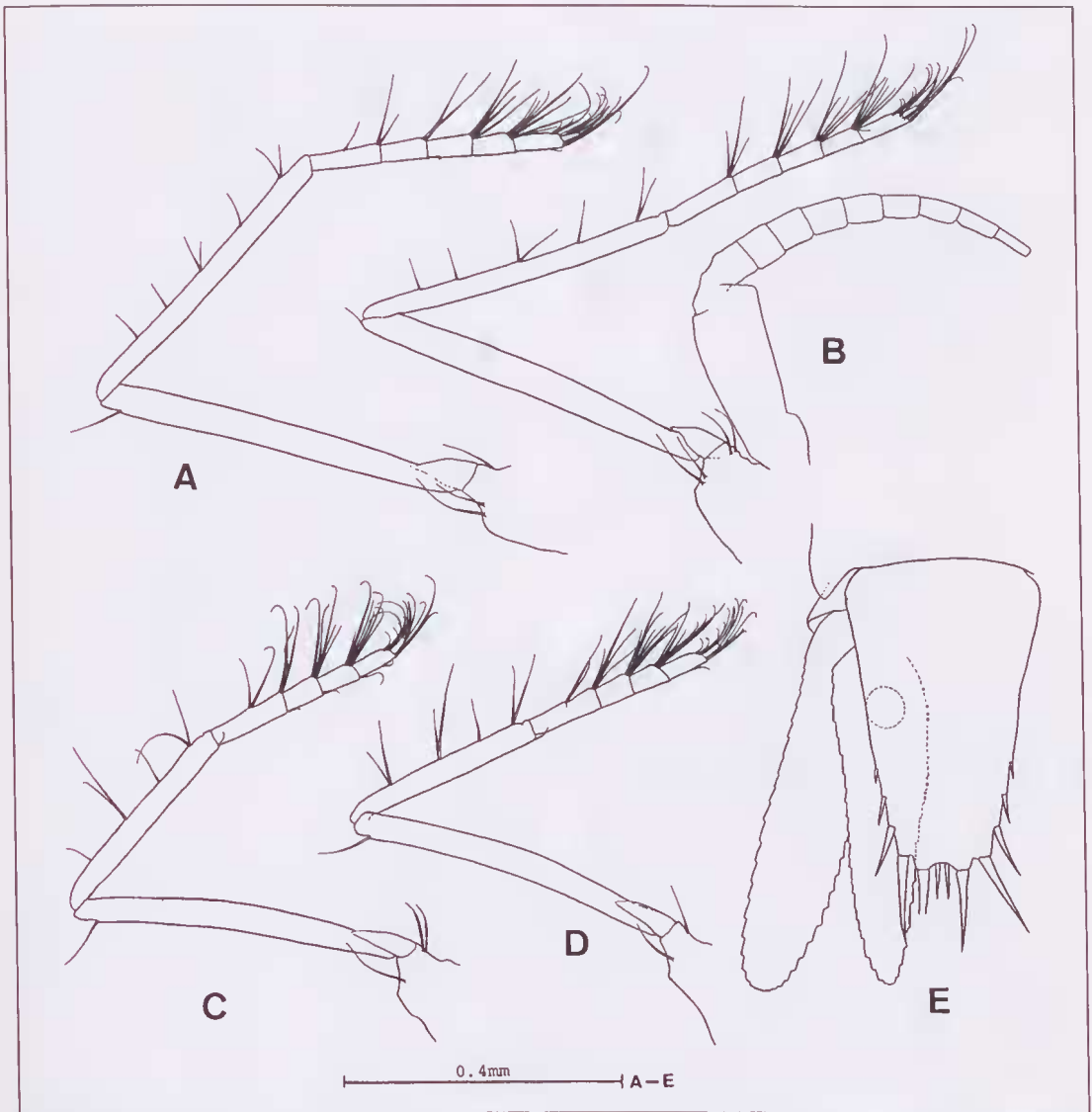


Fig. 5. *Heteromysoides nana* sp. nov., holotype. A, endopod of fifth thoracic limb; B, sixth thoracic limb; C, endopod of seventh thoracic limb; D, eighth thoracic limb; E, uropod and telson.

Maxilla (Fig. 4D): endopod with distal segment longer than proximal segment, heavily setose, endites well developed, densely setose; exopod small, not reaching distal margin of proximal segment of endopod, with feeble marginal setae except for three stout apical setae (Fig. 4D).

Thoracic endopod 1: endite of basis well developed, larger than ischium, with three or four forked setae (one seta broken off) on medial margin, medial margins of ischium, merus and carpus heavily setose; dactylus

with stout terminal claw (Fig. 4E). Thoracic endopod 2 built stoutly; ischium less than twice as long as broad, with five long setae on inner margin, merus more than twice as long as broad, with two setae on inner margin, carpopropodus twice longer than broad; with eight long setae on distal half of inner margin; dactylus with many marginal plumose setae and long naked setae (Fig. 4F). Thoracic endopod 3 rather slender, merus 4.5 times longer than broad; carpopropodus imperfectly divided into

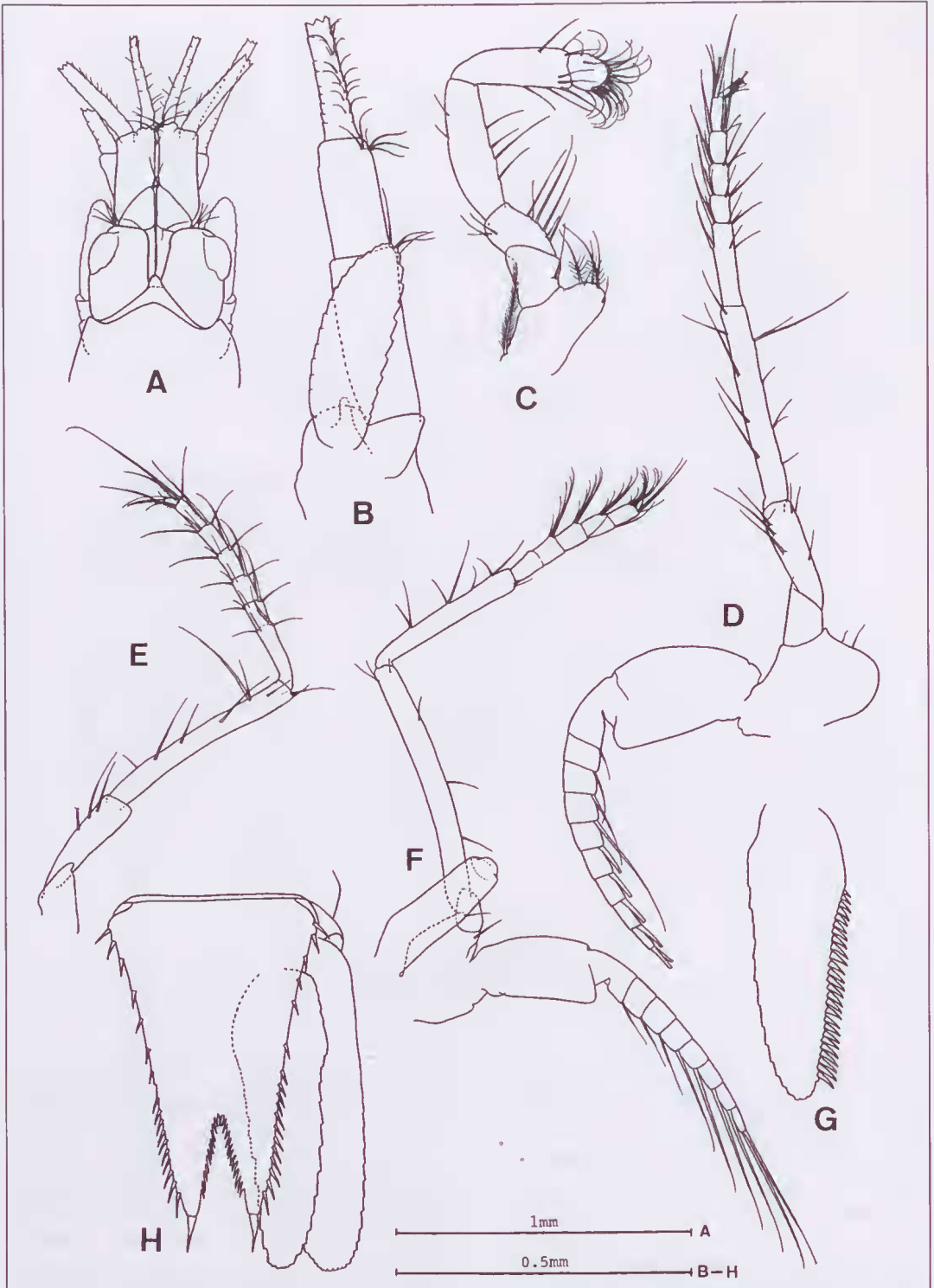


Fig. 6. *Heteromysoides sahalensis* sp. nov., holotype. A, anterior end of body; B, antenna; C, endopod of second thoracic limb; D, fourth thoracic limb; E, endopod of fifth thoracic limb; F, eighth thoracic limb and penis; G, endopod of uropod; H, uropod and telson.

three subsegments, subsegment 1 with one thick plumose seta and one slender seta on middle and distal corner of inner margin, subsegment 2 with one thick plumose seta and one barbed seta at inner distal corner, subsegment 3 with one thick seta and one short seta; dactylus small, with slender claw (Fig. 4G). Thoracic endopod 4 same as endopod 3 in structure but somewhat bigger, segmentation becoming more distinct (Fig. 4H). Thoracic endopods 5 and 6 very slender; ischium 1.1 times longer than merus; merus 1.25 times longer than 5-segmented carpopropodus (Fig. 5A, B). Thoracic endopod 7 very slightly bigger than endopod 8, both same as endopods 5 and 6 in structure but considerably smaller; ischium about 1.5 times longer than merus; merus 1.1 times longer than 4-segmented carpopropodus (Fig. 5C, D). Marsupium composed of two pairs of oostegites.

Abdominal somite 1 longer than somite 2; somites 2–5 subequal; somite 6 1.5 times longer than somite 5. Pleopods uniramous, unsegmented, increasing in length posteriorly, pleopod 5 is 1.8 times longer than pleopod 1.

Uropod setose all round; endopod extending beyond telson for 1/3 length of endopod, about four times as long as broad in statocyst region, medial margin nearly straight, without spines; exopod extending very slightly beyond endopod, about 4.5 times as long as greatest width (Fig. 5E).

Telson slightly longer than abdominal somite 6, 1.6 times longer than broad at base; lateral margin straight, with four pairs of spines increasing in length distally; distal margin slightly concave, with two pairs of spines, outer pair more than twice length of inner pair, equal to distalmost spine on lateral margin (Fig. 5E).

Remarks. As far as I can determine, six species of the genus *Heteromysoides* are now known: *H. cotti* (Calman, 1932), *H. spongicola* Bacescu, 1968, *H. longiseta* Bacescu, 1983, *H. dennisi* Bowman, 1985, *H. berberae* Bacescu and Müller, 1985, and *H. macrops* Murano, 1988. The new species resembles *H. dennisi* Bowman, 1985, collected from a cave off Grand Bahama Island, in the telson lacking an apical cleft, and the absence of spines on the uropodal

endopod, but is readily distinguishable from the latter species in the eye: *H. dennisi* bears an eyestalk produced into an acute process at the distolateral corner and the cornea occupying the central half of the lateral surface.

The thoracic endopod 3 in the new species does not develop a subchelate structure and closely resembles endopod 4 in structure. This is a conspicuous character, because all other species of the genus are known to have a subchelate termination in thoracic endopod 3, except for two species, *H. spongicola* and *H. macrops* for which it is not described.

Etymology. The species is named after the small body size.

Heteromysoides sahulensis sp. nov.

(Fig. 6)

Type specimen. HOLOTYPE – adult male, NTM Cr. 012278, 3.4 mm, Sahul Shelf, from 12°17.3'S, 129°40.9'E to 12°17.2'S, 129°41.8'E, 49–52 m, 24 June 1972, plankton net installed at mouth of beam trawl during RV *Hakuho Maru* Cruise KH-72-1.

Description. Carapace produced anteriorly in short triangular rostral plate with rounded apex, lateral margin of rostrum convex, leaving eyes and antennular peduncles uncovered (Fig. 6A); anterolateral corner of carapace rounded; posterior margin emarginate, exposing last thoracic somite dorsally.

Eye rectangular, large, extending to distal margin of antennular peduncle segment 1; cornea small, located at outer distal corner, not extending beyond anterior margin of eyestalk (Fig. 6A).

Antennular peduncle slender; segment 1 with outer distal corner produced anteriorly, tipped with several setae; segment 2 short, obliquely connected with segment 3, armed with two setae at inner distal corner; segment 3 more than twice as long as broad, armed with three setae at inner distal corner and one seta on inner margin (Fig. 6A).

Antennal peduncle shorter than

antennular peduncle (Fig. 6A), slender, segment 2 is 2.5 times as long as maximum breadth, equal to combined length of segments 1 and 3 (Fig. 6B). Antennal scale short, not reaching distal end of antennular peduncle segment 2, three times as long as broad, with convex inner margin and straight outer margin; setose all round (Fig. 6B).

Thoracic endopod 2 robust; endite from basis large; dactylus short, slightly longer than broad, with rounded apex armed with setae (Fig. 6C). Thoracic endopod 3 missing in this specimen. Thoracic endopod 4 with carpopropodus slightly longer than merus and 5-subsegmented, subsegment 1 slightly shorter than combined length of three intermediate subsegments (Fig. 6D). Thoracic endopod 5 with carpopropodus subequal to merus and 6-subsegmented but first articulation imperfect (Fig. 6E). Thoracic endopod 6 lost in this specimen. Thoracic endopods 7 and 8 more slender than endopods 4 and 5; carpopropodus longer than merus, 6-subsegmented, subsegment 1 longer than sum of succeeding segments (Fig. 6F). Thoracic exopods distal to basal plate 8- or 9-segmented (Fig. 6D, F).

Penis cylindrical, with rounded apex (Fig. 6F). Thoracic somites without sternal processes. Male pleopods uniramous, unsegmented, not modified, with developed side lobe, increasing in length from first to fifth pair. Uropod setose all round; endopod furnished with 26 spines arranged densely on inner margin from statocyst region to near apex (Fig. 6G); exopod equal in length to endopod (Fig. 6H).

Telson longer than last abdominal somite, 1.5 times as long as maximum breadth at base; lateral margin slightly concave in proximal half and slightly convex in distal half, armed with 18 rather slender spines arranged densely in distal half and sparsely in proximal half; each apex armed with single strong spine; distal sinus V-shaped, 1/3 as long as telson, furnished with 24 spinules on margin except distal short distance (Fig. 6H).

Remarks. The new species is easily distinguished from all the known species in: (1) both rami of the uropod equal in length, (2) the endopod of the uropod armed densely

with 26 spines on the inner margin from the statocyst region to near the apex, (3) the sinus of the telson is 1/3 as long as the telson and furnished with 24 spines on the margin, (4) the apices of the telson furnished with one spine each, and (5) the lateral margin of the telson armed with 17–18 spines on the entire length.

Etymology. The species is named after the locality in which it was collected.

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